

Notice of Allowability	Application No.	Applicant(s)	
	10/645,221	LINDSAY ET AL.	
	Examiner	Art Unit	
	Kimberly Lovel	2167	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 3/27/2007.
2. ☒ The allowed claim(s) is/are 1-52.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application |
| 2. <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date <u>20070601</u> . |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

DETAILED ACTION

1. This action is responsive to Applicants' Amendment filed 27 March 2007.
2. Claims 1-52 are pending in this application. Claims 1, 18, 35 and 52 are independent.
3. After a thorough search and examination of the present application and in light of prior art made of record and Applicants' Amendments and Remarks filed 27 March 2007 and the Examiner's amendments made on 8 June 2007, which amended claim 18, claims 1-52 are allowed.

EXAMINER'S AMENDMENT

4. Authorization for this Examiner's amendment, listed below, was given in a telephone interview with Mohammad Rahman (Reg. No. 43,029) on 8 June 2007. The interview summary is attached.

Please amend claim 18 as follows:

Art Unit: 2167

18. (Currently Amended) A program storage device readable by computer, tangibly embodying a program of instructions executable by said computer to perform [[a method of]] data replication in a distributed computing system, said [[method]] program comprising:

assigning a delta production and consumption value for arbitrary data sources and targets operable for replicating data, wherein each delta production and consumption value contains all changes that must be applied atomically to data being replicated in said distributed computing system;

embedding replication tracking information within said delta production and consumption value, wherein said replication tracking information comprises a timestamp and a contiguous sequence number;

sending the embedded delta production and consumption value from a source site to a target site;

atomically and independently applying updates exactly once at said target site using said replication tracking information; and

using an apply service at said target site to embed and analyze said tracking information during a crash recovery sequence, wherein said apply service utilizes an in-memory index when a system crash occurs and a recovery process is initiated by said distributed computing system.

Reasons for Allowance

5. The following is a statement of reasons for the indication of allowable subject matter:

In the Examiner's Final Office Action dated 21 August 2006, the 35 USC § 102 rejection of claim 52 was based on US Patent No 6,889,231 to Sounder et al; the 35 USC § 103 rejections of claims 1-13, 15-30, 32-47 and 49-51 were based on US Patent No 6,889,231 to Sounder et al and US PGPub 2003/0088589 to Good et al; and the 35 USC § 103 rejections of claims 14, 31 and 48 were based on US Patent No 6,889,231 to Sounder et al; US PGPub 2003/0088589 to Good et al; and US Patent No. 6,006,267 to Nguyen et al.

It is noted that claim 52 recites a system, which includes the phrase "means for." The "means" represent the instructions required to carry out each of the steps. Paragraph [0062] of applicants' specification states "A program storage device readable by the disk or tape units is used to load the instructions, which operate the invention, which is loaded onto the computer system 1." The computer system 1 includes at least one processor 10 (see Fig 7 and [0062]). Therefore, the system is considered to represent statutory subject matter since in order for the instructions to carry out the recited limitations, the processor has to execute the instructions.

In the Remarks filed on 19 October 2006, Applicant specifically emphasized that Sounder uses a different connotation of the term atomic than defined by the Applicants' Specification. The Applicants' use of "atomically" is that each update is applied only once. Also the Remarks state that the Applicants' embed tracking information within the

update itself. In contrast, Sounder sends the replication information as part of the same stream, but not as part of the update. Therefore, Sounder does not embed such replication tracking information within the update.

The Amendment filed 27 March 2007, further narrowed and clarified the subject matter in each of the independent claims. The combination of the limitations as a whole within the amended independent claims overcome the prior art and therefore are considered allowable subject matter.

An updated search of prior arts on EAST database and on domains (NPL-ACM, Google, NPL-IEEE) has been conducted. The prior arts searched and investigated in the database and domains does not fairly teach or suggest the teaching of the newly amended claimed subject matter as described above and reflected by the combined elements in the independent claims 1, 18, 35 and 52.

The dependent claims 2-17, 19-34 and 36-51 depending directly or indirectly upon claims 1, 18 and 35, respectively, are also distinct from the prior art for the same reasons.

6. Any comments considered necessary by applicant must be submitted no later than payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statements of Reasons for Allowance."

Contact Information


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kimberly Lovel whose telephone number is (571) 272-2750. The examiner can normally be reached on 8:00 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Cottingham can be reached on (571) 272-7079. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kimberly Lovel
Examiner
Art Unit 2167

6 June 2007
kml


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